

Claims

WHAT IS CLAIMED IS:

1. A RGB to YUV video filter, comprising:
 - a lumina filter path coupled to receive blocks of RGB formatted data and generate a block of lumina data; and
 - a chroma filter path coupled to receive the blocks of RGB formatted data and generate blocks of chroma data,
 - wherein the lumina filter path and the chroma filter path operate in parallel.
2. The filter of claim 1, wherein the lumina filter path includes an interpolation filter and a RGB to Y conversion.
3. The filter of claim 2, wherein the interpolation filter includes a 5-tap vertical filter and a 5-tap horizontal filter.
4. The filter of claim 2, further including gamma correction.
5. The filter of claim 2, further including an edge enhancement filter.
6. The filter of claim 2, further including a spatial filter.
7. The filter of claim 1, wherein the chroma filter path includes an interpolation filter and a RGB to UV conversion.
8. The filter of claim 7, wherein the interpolation filter includes a 7-tap vertical filter and a 7-tap horizontal filter.
9. The filter of claim 7, wherein the chroma filter path further includes color correction.
10. The filter of claim 7, wherein the chroma filter path further includes gamma correction.

11. The filter of claim 7, wherein the chroma filter path further includes core chroma correction.

12. A method of converting RGB formatted video data to YUV formatted video data, comprising:

receiving a block of RGB video data;

filtering the block of RGB video data through a lumina filter path; and

filtering the block of RGB video data through a chroma filter path,

wherein the lumina filter path and the chroma filter path are parallel paths.

13. The method of claim 12, wherein receiving a block of RGB video data includes receiving a 24 by 24 block of pixel data.

14. The method of claim 12, wherein receiving a block of RGB video data includes adjusting the numerical values in the block for black clamp values.

15. The method of claim 12, wherein receiving a block of RGB video data includes performing a white balance operation on the block of RGB video data.

16. The method of claim 12, wherein filtering the block of RGB video data through a lumina filter path includes interpolating the RGB data to form red, green and blue color planes with interpolated values associated with the appropriate color in each pixel location of the red, green and blue color planes.

17. The method of claim 16, further including generating the lumina Y data block from the red, green and blue color planes.

18. The method of claim 17, further including performing a gamma correction on the lumina Y data block.

19. The method of claim 17, further including performing an edge enhancement on the lumina Y data block.

20. The method of claim 17, further including spatially filtering the lumina Y data block.

21. The method of claim 12, wherein filtering the block of RGB video data through a chroma filter path includes interpolating the RGB data to form red, green and blue color planes with interpolated values associated with the appropriate color in each pixel location of the red, green and blue color planes.

22. The method of claim 21, wherein interpolating the RGB data includes applying a vertical filter and applying a horizontal filter to the RGB video data block.

23. The method of claim 22, wherein the vertical filter and the horizontal filter each include a 7-tap filter.

24. The method of claim 21, further including determining U and V data blocks from the red, green and blue color planes.

25. The method of claim 24, further including performing a color correction on the red, green and blue color planes.

26. The method of claim 24, further including performing a gamma correction on each of the red, green and blue color planes.

27. The method of claim 24, further including performing a core chroma correction on the U and V data blocks.

28. A RGB to YUV conversion, comprising:

means for converting RGB blocks to blocks of Y data; and

means for converting RGB blocks to blocks of UV data.

29. A video apparatus, comprising:

a sensor array for acquiring image data in RGB format;

a memory;

a sensor interface coupled between the sensor array and the memory to write image data into the memory;

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a RGB to YUV conversion block coupled to the memory to receive image data from the memory and write YUV data into the memory, the conversion block including a lumina filter path and a separate chroma filter path;

an encoder coupled to the memory to read the YUV data and encode the data for transmission; and

a transmission interface coupled to memory 104 to read and transmit the encoded data.

30. The apparatus of claim 29, further including a defective pixel correction block coupled to memory 104 to correct the image data for defective pixels.